ASANTÉ

IntraCore® IC3624PWR

Layer 2+ Power over Ethernet (PoE) Switch
with Dual Gigabit

Setup Guide

IntraCore® IC3624PWR

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Setup Guide

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Quick Start Guide

Follow these steps to install your IntraCore IC3624PWR Layer 2+ Power Over Ethernet with Dual Gigabit switch. (Refer to Chapter 3 in this document or the User's Manual for this product for complete instructions.)

1. Open the box and check the contents.
2. Install the switch in an equipment rack, or prepare it for desktop placement.
3. Connect the power supply.
4. Connect required devices to the switch.
5. Configure the switch.

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Chapter 1: Introduction

The IntraCore IC3624PWR Layer 2+ Power over Ethernet (PoE) with Dual Gigabit (IC3624PWR) is a product you can use to build your next generation network.

The IC3624PWR device uses Layer 2+ technology and has 24 ports for 10/100/1000BastTX Fast Ethernet with 2 combination ports for added 10/100BaseT Gigabit Ethernet.

Use the advanced features on the IC3624PWR switch to deploy Voice over IP (VoIP) telephones, cameras and wireless access points.

The following figure shows the front of the IC3624PWR PoE switch.

1.1 Features

The IntraCore IC3624PWR supports the following features:

1.1.1 Connectivity

Compared with conventional 24-port 10/100 Fast Ethernet Layer 2+ switches, the IC3624PWR delivers power for all compatible devices.

- Meets IEEE 802.3af PoE standards
- 180 watts of total power (up to 15.4 watts per 10/100 port)
- IEEE 802.1p prioritization, DiffServ and IP ToS supports VoIP.

The switch supports all the services needed for your advanced network.

- Supports 802.1x authentication per port
- Up to 256 VLANs with GVRP and GARP
- 4 class of service queues per port
- IGMP v1 and v2 snooping support
- 6 groups of trunking for link aggregation and redundancy
- IEEE 802.1d and 802.1s spanning tree support with rapid reconfiguration and fast link option

1.1.2 Performance

The IC3624PWR switch uses a wire-speed, non-blocking switching fabric.

- Wire-speed Gigabit switching (1,488,000 pps) and Fast Ethernet switching (148,800 pps)
- Non-blocking 8.8 Gbps switch fabric

1.1.3 Management

- Web browser
- Telnet (multiple sessions)
- Console
- SNMP v1 and v2c
- RMON Groups 1, 2, 3 and 9

1.2 Network Management Options

The IntraCore IC3624PWR provides both local and remote management. You can configure or monitor the switch using the embedded management software or by using SNMP applications. You can manage the switch by a direct connection to the RS-232 console port (out-of-band), or a network connection (in-band) using Telnet, or the on-board Web agent.

1.3 Ports

Each port has auto-negotiation, so the optimum transmission mode (half or full duplex), and data rate (10, 100, or 1000 Mbps) is always available. If a device connected to one of these ports does not support auto-negotiation, the communication mode of that port can be manually configured.

Each port also supports auto-negotiation of flow control, so the switches can automatically prevent port buffers from becoming saturated.

Chapter 2: Network Planning

This chapter gives an overview of switch management, including the methods you can use to manage your IntraCore IC3624PWR Managed Switch. Topics include:

- Management Access Overview
- SNMP Access
- Protocols

2.1 Management Access Overview

You can access and manage the IC3624PWR Managed Switch using the following methods:

- Administration console
- Web browser interface
- External SNMP-based network-management application

The administration console and Web browser interface support are embedded in the switch's firmware.

Management Method	Advantages	Disadvantages
Administration Console	Access through direct cable connection eliminates bottlenecks, crashes and downtime No IP address or subnet is needed Menu or CLI based HyperTerminal access to full functionality (standard Microsoft Windows 95/98/NT/2000 operating systems)	Must be near switch or use dial-up connection Not convenient for remote users Not available using a GUI
Web Browser or Telnet	Access from any location through the switch's IP address Configure the switch remotely Compatible with Internet Explorer and Netscape Navigator Web browsers GUI data available Menu or CLI interfaces available	Security can be compromised Lag times on poor connections increase GUI display may slow navigation
SNMP Agent	Communicate at the Management Information Base (MIB) level Based on open standards	Requires SNMP manager software Limited information available Some settings require calculations Security can be compromised

Chapter 3: Hardware Installation and Setup

This chapter describes the procedures for rack-mounting, connecting the cables, and powering up the IntraCore IC3624PWR PoE switch at your site.

3.1 Installation Overview

1. Follow these steps to install the IntraCore IC3624PWR PoE switch:
2. Open the box and check the contents. For a complete list of the items included with the switch see “Equipment Checklist” section later in this chapter.
3. Install the switch in an equipment or wall rack, or prepare for desktop placement.
4. Connect the power cord to the switch and to an appropriate power source.
5. Connect network devices to the switch.

See the sections below for more detailed installation instructions.

3.2 Safety Recommendations

The following information provides safety guidelines to ensure general safety and to protect the switch from damage.

Note: The following guidelines may not include every possible hazard to which you may be exposed. Use caution when installing this switch. Only trained and qualified personnel install or replace this equipment.

- Keep the switch clean
- Keep tools and components off the floor and away from foot traffic
- Do not wear rings or chains (or other jewelry). Metal objects can heat up and cause serious injury to persons and damage to the equipment.
- Do not wear loose clothing. Fasten your tie or scarf and roll up your sleeves.
- When working with electricity, follow these guidelines:
- Disconnect all external cables before installing or removing the cover
- Do not work alone when working with electricity
- Always check that the cord has been disconnected from the outlet before performing hardware configuration
- Do not tamper with the equipment. Doing so could void the warranty
- Examine the work area for potential hazards (such as wet floors or ungrounded cables)

3.3 Site Requirements

Consider the following site requirements for proper installation.

3.3.1 Environmental Requirements

Choose a clean, dry, dust-free area location. Avoid direct sunlight, heat sources, or areas with high levels of electromagnetic interference. Failure to observe these limits may cause damage to the switch and may void the warranty.

3.3.2 Power

Make sure the power source adheres to the following guidelines:

Outlet: Properly grounded, located near the switch, and easily accessible

Power: Auto Switching 100-240 VAC, 50/60 Hz, maximum 225 watts

Frequency range: 50/60 Hz

3.3.3 Cooling and Airflow

The IC3624PWR PoE switch use internal fans for air-cooling. Do not restrict airflow by covering or obstructing air vents on the sides of the switch.

Operating Temperature: 32° to 104°F (0° to 40°C)

Relative Humidity: 10% to 90% non-condensing

3.3.4 Rack Mounting

Before mounting the switch in a rack follow these general precautions:

Size: 17.3 x 9.9 x 1.7 in (440 x 253 x 43 mm)

Weight: 9.5 lb (4.3 kg)

Temperature: The temperature within a rack assembly may be higher than the ambient room temperature check that the rack-environment temperature is within the specified operating temperature range remains below 104°F (40°C).

Clearance: Clear all obstructions, such as other equipment or cables, block airflow to or from the vents of the switch. Be sure there is adequate clearance for servicing the switch.

Mechanical Loading: Do not place any equipment on top of a rack-mounted unit.

Circuit Overloading: Be sure that the supply circuit to the rack assembly is not overloaded.

Grounding: Rack-mounted equipment should be properly grounded. Particular attention should be given to supply connections other than direct connections to the mains.

3.4 Preparing for Installation

Switches can be mounted in a standard 19-inch equipment rack or on a flat surface. Follow these general precautions when planning your equipment locations and connections.

The site needs the following:

- Centrally located to the devices you want to link
- Near a power outlet.
- Constant temperature within 32° to 104°F (0° to 40°C) and its humidity within 10% to 90%, non-condensing
- Adequate space (approximately 2 in or 5 cm) on all sides for proper air flow
- Accessible for installing, cabling and maintaining the devices
- Clearly visible status LEDs

Additional precautions:

- Keep the front of the chassis free from obstruction and away from the exhaust air of other equipment. Electrical equipment generates heat and the ambient room temperature be enough to cool the equipment to required operating temperatures.
- Make sure twisted-pair cable is always routed away from power lines, fluorescent lighting fixtures and other sources of electrical interference, for example radios and transmitters.
- Make sure that the unit is connected to a separate grounded power outlet that provides 100 to 240 VAC, 50 to 60 Hz, is within 8 ft (2.44 m) of each device and is powered from an independent circuit breaker. As with any equipment, using a filter or surge suppressor is recommended.

3.5 Unpacking and Inspecting

Before you start examine all shipping containers for damage. Notify the shipping carrier of any damage. Unpack the unit by removing the packing material and lifting it from the protective enclosures. Visually examine the equipment and check the container for parts and accessories. You should have the following items:

- An IntraCore IC3624PWR PoE switch
- Four adhesive foot pads
- A Rack Mounting Kit
- Two brackets
- Four screws for attaching the brackets
- An AC Power Cord
- An RS-232 console cable

Contact your dealer immediately if any item is missing.

3.5.1 Recommended Tools

You need the following tools and equipment (not included) to install the switch into an equipment rack:

- Flat head screwdriver
- Phillips head screwdriver
- Four mounting screws for each device you plan to install in a rack (not included with the switch)

- Antistatic mat or foam

3.6 Installing the Switch

The switch can be mounted in a standard 19-inch equipment rack or place on a desktop or shelf. Mounting instructions for each type of site follow.

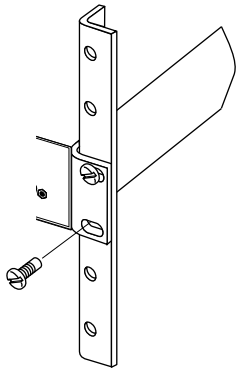
3.6.1 Mounting the Switch in a Rack

When installing this unit in an empty rack, mount it at the bottom. When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom. Follow these steps to properly install the switch into an equipment rack.

Caution: Before continuing, disconnect all cables from the switch.

To mount the switch onto an equipment rack:

- Place the switch on a flat, stable surface.
- Locate a rack-mounting bracket (supplied) and place it over the mounting holes on one side of the switch.
- Use the screws (supplied) to secure the bracket (with a Phillips screwdriver).
- Repeat the two previous steps on the other side of the switch.
- Place the switch in the equipment rack.
- Secure the switch attaching the mounting brackets onto the equipment rack with the screw supplied with the unit.



Warning: Make sure you support the switch until all the mounting screws for each bracket is secured to the equipment rack. Failure to do so could cause the switch to fall, which may result in personal injury or damage to the switch.

When installing multiple switches, mount them in the rack, one below the other, in any order.

When installation is complete turn to the “Applying Power” section.

3.6.2 Desktop or Shelf Mounting

Follow these steps when planning to use the switch on either a desktop or a shelf:

1. Attach the four adhesive feet to the bottom of the switch.

2. Set the device on a flat surface near an AC power source, making sure there are at least two inches of space on all sides for proper airflow.

3. Place each device squarely on top of the one below, in any order.

When installation is complete refer to the “Applying Power” section.

3.7 Applying Power

The system’s front panel LED display allows you to monitor the status of the switch. Follow these steps to connect the switch.

1. Use the supplied power cord and plug the female end directly into the receptacle located at the back of the device.

2. Plug the other end of the cord into a properly grounded electrical outlet.

3. Check the front-panel LEDs as the device is powered on to be sure the Power LED is lit. If not lit, check that the power cable is correctly plugged in.

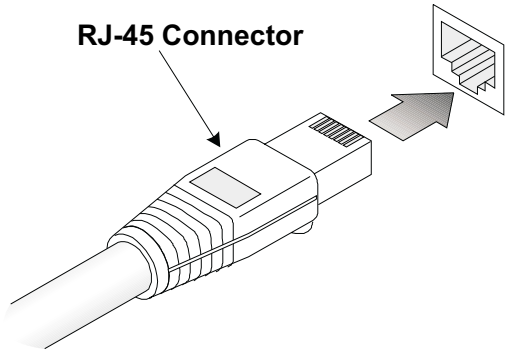
4. Connect the optional redundant power supply to the switch and to an AC power source by following the instructions for the unit.

Warning: For International use: if you use power other than AC, you must use power cords that meet the appropriate standards for the power you are using.

3.8 Ethernet Cabling

The cables you need are determined by the existing equipment. Check the following criteria against the current installation of your network:

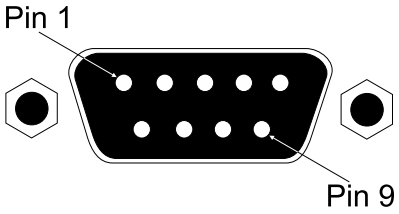
- **Cable type:** Unshielded twisted pair (UTP) or shielded twisted pair (STP) cables with RJ-45 connectors; Category 3 or better for 10BaseT and Category 5 or better for 100BaseTX.
- Protection from radio frequency interference emissions
- Electrical surge suppression
- Separation of electrical wires (switch related or other) and electromagnetic fields from data based network wiring
- Safe connections with no damaged cables, connectors, or shields



When attaching a workstation to the switch, a standard straight-through CAT5 cable may be used.

3.9 Connecting to the Console Port

The DB-9 serial port located on the front panel is used to connect to the switch for out-of-band console configuration. The on-board configuration program can be accessed from a terminal or a PC running a terminal emulation program. The pin assignments used to connect to the serial port are provided in the following tables.



3.9.1 Wiring Map for Serial Cable

The following table describes the serial cable wiring information.

Switch's 9-Pin Serial Port	**Null Modem**	**PC's 9-Pin DTE Port**
2 RXD (receive data)	←	3 TXD (transmit data)
3 TXD	→	2 RXD (receive data)
5 SGND (signal ground)	---	5 SGND (signal ground)

The serial port configuration requirements are as follows:

- Default Baud rate—9,600 bps
- Character Size—8 Characters
- Parity—None
- Stop bit—One
- Data bits—8

Chapter 4: Connecting Network Devices

The switch is designed to interconnect multiple segments (or collision domains). It can be connected to network cards in PCs and servers, and to hubs, routers, or other switches.

4.1 Twisted-Pair Devices

Each device requires an unshielded twisted-pair (UTP) cable with RJ-45 connectors at both ends. Use Category 5 for 100BaseTX connections, and Category 3, 4 or 5 for 10BaseT connections.

The RJ-45 ports on these switches support automatic MDI/MDI-X pinout configuration, so you can use standard straight-through twisted-pair cables to connect to any other network device (PCs, servers, switches, routers, or hubs).

Caution: Do not plug a phone jack connector into an RJ-45 port. Doing this will damage the switch. Use only twisted-pair cables with RJ-45 connectors that conform to FCC standards.

4.2 Interpreting LEDs

The LEDs are located on the front panel.

The following table lists the LEDs and describes the status lights.

LED	Condition	Status
Fast Ethernet	On/Green	The port has a valid 100 Mbps link. Flashing indicates activity.
	On/Amber	The port has a valid 10 Mbps link. Flashing indicates activity.
Gigabit Ethernet	On/Green	The port has a valid 100 Mbps or 1000 Mbps link. Flashing indicates activity.

4.3 Connectivity Guidelines

When adding to your network, follow the connectivity rules listed in the manuals for these products. Since the switch breaks the path for connected devices into separate collision domains, you should not include the switch or connected cabling in your calculations for cascade length involving other devices.

4.4 Cable Labeling and Connection Records

When planning a network installation, it is essential to label and record where each cable is connected. This helps you locate inter-connected devices, isolate faults, and change your topology.

Chapter 5: Configuring the Switch

This chapter takes you through the steps required to initially connect the switch to a console, set up initial passwords, configure an IP address, and restore factory defaults. For complete information about configuring, monitoring, and maintaining your switch, refer to the System Management Guide.

5.1 Connecting to the Switch

The switch includes a built-in network management agent. The agent offers a variety of management options, including SNMP, RMON and a Web-based interface. You can connect PC directly to the switch for configuration and monitoring via a command line interface (CLI).

Note: The IP address for this switch is unassigned by default. To change this address, see the “Setting an IP Address” section.

The switch’s HTTP Web agent allows you to configure switch parameters, monitor port connections, and display statistics using a standard Web browser such as Netscape Navigator version 6.2 and higher or Microsoft IE version 5.0 and higher. You can access the switch’s Web management interface from any computer attached to the network.

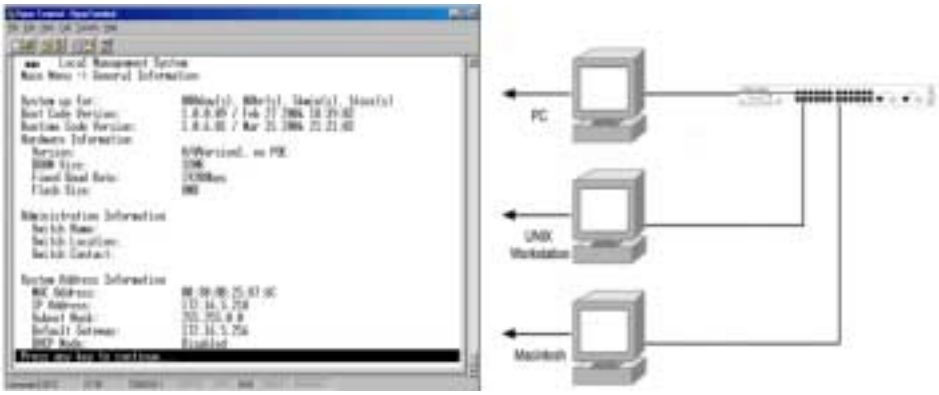
Access the CLI program by using a direct connection to the RS-232 serial console port on the switch, or remotely by a Telnet connection over the network.

The switch’s management agent also supports SNMP (Simple Network Management Protocol). This SNMP agent permits the switch to be managed from any system in the network using network management software such as HP OpenView.

The switch’s Web interface, CLI configuration program, and SNMP agent allow you to perform different management functions including:

- Set user names and passwords
- Set an IP interface for a management VLAN
- Configure SNMP parameters
- Enable/disable any port
- Set the speed/duplex mode for any port

The administration console is an internal, character-oriented, VT-100/ANSI menu-driven user interface for performing management activities. Using this method, you can view the administration console from a terminal, PC, Apple Macintosh, or UNIX workstation connected to the switch’s console port. The following figure shows an example of this management method.



5.2 Direct Access

Direct access to the switch console is achieved by connecting the null-modem cable to the switch's console port to a VT-100 or compatible terminal or to a PC, Apple Macintosh, or UNIX workstation equipped with a terminal-emulation program. The following list provides examples of terminal-emulation programs:

- HyperTerminal (which is built into the Microsoft Windows operating systems)
- ZTerm (Apple Macintosh)
- TIP (UNIX workstation)

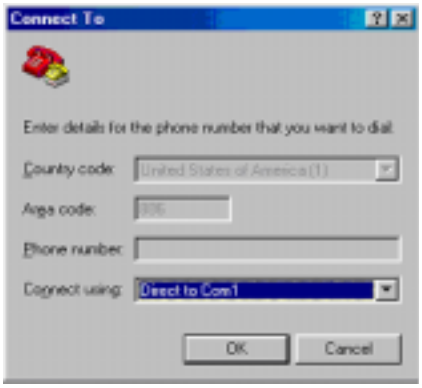
Follow these steps to set up the connection. Note; the graphics in this example show the HyperTerminal on a PC.

1. Click the Start button.
2. Select Accessories and then Communications.
3. Select HyperTerminal

The following screen appears.

1. Enter a name for this connection.
2. Click OK

The following screen appears.



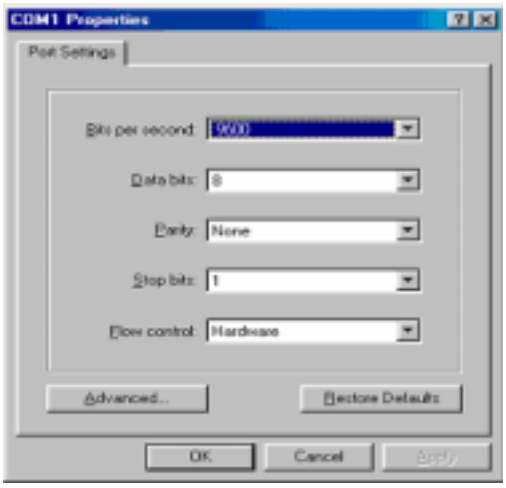
1. In the drop down box labeled Connect Using:, click the arrow and choose the desired COM port. (In the example below, COM1 is the port selected.)

2. Click OK.

Connection Settings

The port settings are as follows:

Baud Rate:	9600
Data Bits:	8
Parity:	None
Stop Bits:	1
Flow Control:	None



1. Enter the settings.
2. Click OK.

5.3 Initial Logon

The switch offers a Command Menu Interface (CMI), which is a menu-driven method for managing the switch, as well as a Command Line Interface (CLI), which uses text input to manage the switch. Unless otherwise noted, the screen examples in this chapter are from the CLI.

When the HyperTerminal window opens and you are connected to the switch the following screen appears. If you do not get a login screen or main menu, press the return key.

Terminal — telnet — 80x24
IC3624PWR Remote Management System Version 1.0.0.00
Compilation Date: Sep 21 2004 13:53:25
Login Menu
Login: []

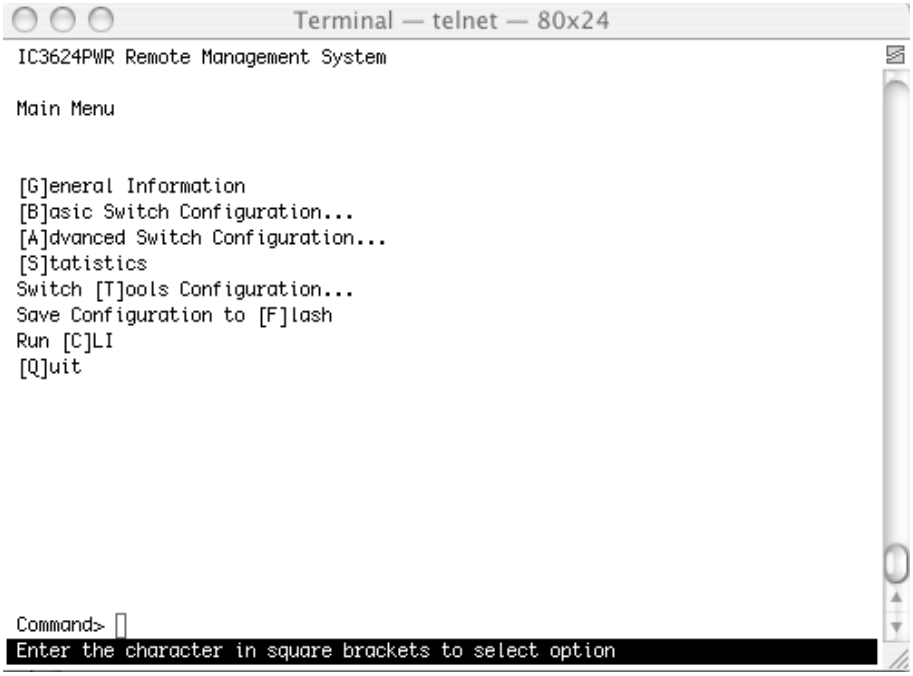
To use the arrow keys when attached to the User Interface using a Telnet Session, under the terminal pull down menu choose Properties and activate the VT100 Arrows option.

Chapter 6: Using the Interface

The main menu displays available sub-menus. The letter within square bracket of each menu option can be typed to directly choose that option. From the main menu there are seven menu items to choose from:

- General Information
- Basic Configuration
- Advanced Switch Configuration
- Statistics
- Switch Tools Configuration
- Save Configuration
- Run CLI

To logout of the user interface, press the Ctrl and D keys at anytime during your telnet session. You return to the login screen (password enabled) or Main Menu (password disabled).



6.1 General Information Menu

The General Information Menu allows you to review information about the switch. Following are two examples of this screen. The first example shows the screen using the GUI interface the second example shows using the interface from a telnet session.

6.2 Basic Configuration Menu

The Basic Configuration screen allows you to configure several basic system-related settings for future use. You reach this screen from the Main Menu.

There are eight submenus at Basic Configuration Menu.

- Administration Configuration
- IP Configuration
- SNMP Configuration
- Port Configuration
- System Security
- Forwarding DB
- SNTP Configuration
- ARP Table
- Quit to previous menu

6.3 Advanced Switch Configuration

The Advanced Switch Configuration screen allows you to configure several advanced system-related settings. There are 10 submenus on the Advanced Switch Configuration screen.

- VLAN Management
- Link Aggregation
- Port Monitoring Configuration
- Multiple Spanning Tree Configuration
- Access List Configuration
- Quality of Service Configuration
- Storm Control Configuration
- 802.1 Port Based Access Control Configuration
- SMNP Snooping Configuration
- Power Over Ethernet Configuration

6.4 Statistics

Use this submenu to view statistics about the switch. You can view the entire switch, select individual ports, refresh the screen to view current statistics or view statistics since the last reset.

6.5 Tools

This screen enables you to manage and monitor the PoE Switch. This page has seven submenus:

- TFTP Software Upgrade
- Configuration File Upload or Download
- System Reboot
- System Log
- Ping

6.6 Save Configuration

Use this submenu to save the changed settings to the Flash memory after making any changes to the screens within the console interface.

To save the configuration to Flash memory select Save Configuration and then press either ‘Enter’ or ‘Y’.

6.7 Run CLI

Use this submenu to configure the switch using the command line interface (CLI). To return to the menu-driven interface type “exit”.

Appendix A: Basic Troubleshooting

In the event the switch does not operate properly, follow the troubleshooting tips below. F you need more help contact Asante technical support at www.asante.com/support.

A.1 Diagnosing Switch Indicators

Refer to the following troubleshooting chart for information about the diagnostic LEDs.

Problem	Possible Solutions
The Power LED is not lit.	LED will turn off during system initialization. Check the power connection. Plug the power cord into another known working AC outlet. The primary power supply has failed. Install the optional emergency power supply and have the primary power supply serviced as soon as possible.
Link LED is not lit	Verify that the switch and attached device are powered on. Check the connection between the switch and corresponding device. Verify that the proper cable type is used and the length does not exceed specified limits. Check the adapter on the attached device and cable connections for possible defects. Replace the defective adapter or cable if necessary.

A.2 Power and Cooling Problems

If the power indicator does not turn on when the power cord is plugged in, you may have a problem with the power outlet, power cord, or internal power supply. However, if the unit powers off after running for a while, check for loose power connections, power losses or surges at the power outlet, and verify that the fans on the unit are unobstructed and running prior to shutdown. If you still cannot isolate the problem, then the internal power supply may be defective.

A.3 Installation

Verify that all system components are properly installed.

A.4 In-Band Access

You can access the management agent in the switch from anywhere within the attached network using Telnet, a Web browser, or other network management software tools. Do this by configuring the switch with a valid IP address, subnet mask, and default gateway. If you can not establish a link to the management agent, verify that there is a valid network connection, you entered the correct IP address, and that the port through which you are connecting to the switch has not been disabled. If it has not been disabled, check the network cabling that runs between the remote location and the switch.

Appendix B: Specifications

The sections below list the features and product specifications for the IntraCore IC3624PWR PoE switch. Refer to the IntraCore IC3624PWR Layer 2+ Power Over Ethernet with Dual Gigabit User's Manual for a complete list of specification.

Physical Characteristics	
Ports	24 10/100BaseTX with auto-negotiation 2 Combination Ports (RJ-45/SFP), 10/100/1000BaseT or 1000BaseX
Network Interface	RJ-45 connector, auto MDI/X 10BaseT: RJ-45 (100-ohm, UTP cable; Categories 3, 4, 5) Maximum Cable Length - 100 m (328 ft) 100BaseTX: RJ-45 (100-ohm, UTP cable; Category 5) Maximum Cable Length - 100 m (328 ft) 1000BaseT: RJ-45 (100-ohm, UTP or STP cable; Category 5, 5e, or 6) Maximum Cable Length - 100 m (328 ft)
LEDs	System: Power (Power Supply) Port: Link/Act (Link/Activity)
Weight	9.5 lb (4.3 Kg)
Size	17.3 x 9.9 x 1.7 inches (440 x 253 x 43.2mm)
Temperature	Operating: 32o to 104o F (0o to 40o C)
Humidity	Operating: 10% to 90% non-condensing
AC Input	100-240 VAC, 50/60 Hz, maximum 225 watts
Performance	
Switch Architecture	Non-blocking 8.8 Gbps
Forwarding MAC Table	Up to 8K unicast addresses with automatic learning and aging
Throughput	Wire-speed Gigabit switching (1,488,000 pps) and Fast Ethernet switching (148,800)
Flow Control	IEEE 802.3x flow control (full duplex) and back pressure (half-duplex)
Switch Architecture	Non-blocking 8.8 Gbps switch fabric
Forwarding MAC Table Packet	Up to 8K unicast addresses with automatic learning and aging
Buffer	256 KB

Appendix C: Cables and Pin Assignments

This Appendix describes the information on 10BaseT/100BaseTX, 1000BaseT, and testing for existing Category 5 cables.

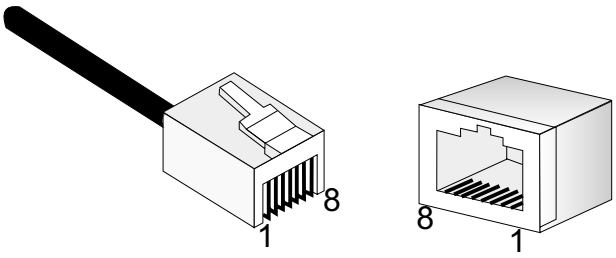
C.1 Twisted-Pair Cable and Pin Assignments

For 10BaseT/100BaseTX connections, a twisted-pair cable must have two pairs of wires. Each wire pair is identified by two different colors. For example, one green wire and another green with white stripes. You must attach an RJ-45 connector to both ends of the cable.

Warning: DO NOT plug a phone jack connector into any RJ-45 port. This will damage the switch. Use only twisted-pair cables with RJ-45 connectors that conform to FCC standards.

Caution: Attach each wire pair to the RJ-45 connectors in a specific orientation. (See " **Error! Reference source not found.**" for more information.)

The figure below illustrates how the pins on the RJ-45 connector are numbered. Be sure to hold the connectors in the same orientation when attaching the wires to the pins.



C.1.1 Pin Assignments for 10BaseT/100BaseTX

Use unshielded twisted-pair (UTP) or shielded twisted-pair (STP) cable for RJ-45 connections: 100-ohm Category 3, 4 or 5 cable for 10 Mbps connections or 100-ohm Category 5 cable for 100 Mbps connections. Additionally, the length of any twisted-pair connection does not exceed 100 meters (328 feet).

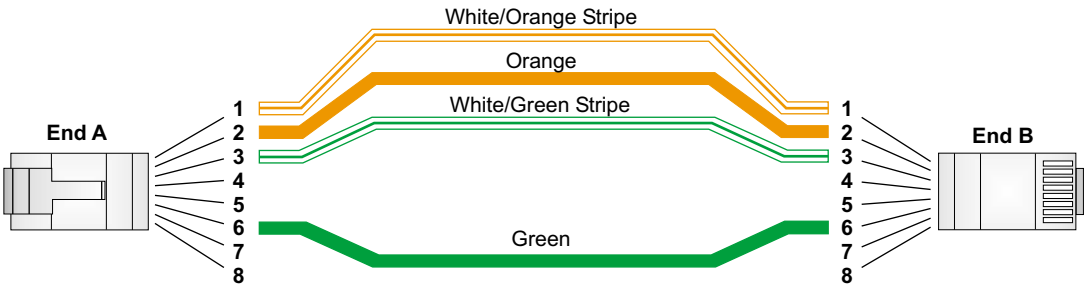
The RJ-45 ports on the switch base unit support automatic MDI/MDI-X operation, so you can use straight-through cables for all network connections to PCs or servers, or to other switches or hubs. In straight-through cable, pins 1, 2, 3, and 6, at one end of the cable, are connected straight through to pins 1, 2, 3, and 6 at the other end of the cable. When using any RJ-45 port on this switch, you can use either straight-through or crossover cable.

Pin	Signal Name	X Signal Name
1	Transmit Data plus (TD+)	Receive Data plus (RD+)
2	Transmit Data minus (TD-)	Receive Data minus (RD-)
3	Receive Data plus (RD+)	Transmit Data plus (TD+)
6	Receive Data minus (RD-)	Transmit Data minus (TD-)
4, 5, 7, 8	N/A	N/A
Note: The “+” and “-” signs represent the polarity of the wires that make up each wire pair.		

C.1.2 Straight-Through Wiring

If the twisted-pair cable is to join two ports and only one of the ports has an internal crossover (MDI-X), the two pairs of wires must be straight-through. (When auto-negotiation is enabled for any RJ-45 port on this switch, you can use either straight-through or crossover cable to connect to any device type.)

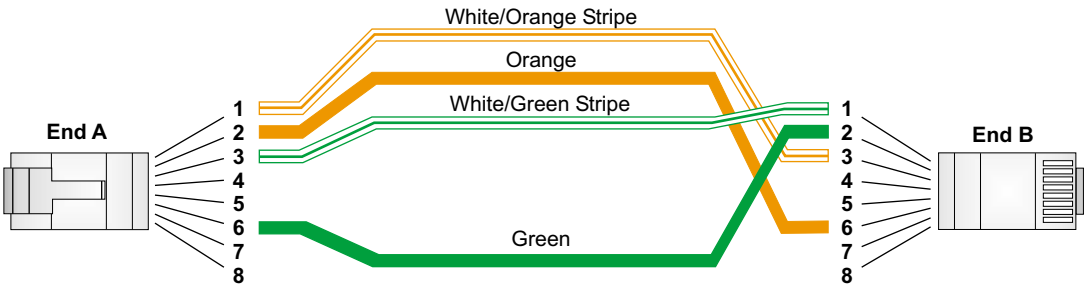
EIA/TIA 568B RJ-45 Wiring Standard
10/100BASE-TX Straight-through Cable



C.1.3 Crossover Wiring

If the twisted-pair cable is to join two ports and both ports have the same indicator (MDI or MDI-X) a crossover must be implemented in the wiring. (When auto-negotiation is enabled for any RJ-45 port on this switch, you can use either the straight-through or the crossover cable to connect to any device type.)

EIA/TIA 568B RJ-45 Wiring Standard
10/100BASE-TX Crossover Cable



C.2 Pin Assignments for 1000BaseT Pin

All 1000BaseT ports support automatic MDI/MDI-X operation, so you can use straight-through cables for all network connections to PCs or servers, or to other switches or hubs.

The table below shows the 1000BaseT MDI and MDI-X port pinouts. These ports require that all four pairs of wires be connected. Note that for 1000BaseT operation, all four pairs of wires are used for both transmit and receive.

Use 100-ohm Category 5, 5e or 6 unshielded twisted-pair (UTP) or shielded twisted-pair (STP) cable for 1000BaseT connections. The length of any twisted-pair connection must not exceed 100 meters (328 feet).

Pin	MDI Signal Name	MDI-X Signal Name
1	Bi-directional Data One Plus (BI_D1+)	Bi-directional Data Two Plus (BI_D2+)
2	Bi-directional Data One Minus (BI_D1-)	Bi-directional Data Two Minus (BI_D2-)
3	Bi-directional Data Two Plus (BI_D2+)	Bi-directional Data One Plus (BI_D1+)
4	Bi-directional Data Three Plus (BI_D3+)	Bi-directional Data Four Plus (BI_D4+)
5	Bi-directional Data Three Minus (BI_D3-)	Bi-directional Data Four Minus (BI_D4-)
6	Bi-directional Data Two Minus (BI_D2-)	Bi-directional Data One Minus (BI_D1-)
7	Bi-directional Data Four Plus (BI_D4+)	Bi-directional Data Three Plus (BI_D3+)
8	Bi-directional Data Four Minus (BI_D4-)	Bi-directional Data Three Minus (BI_D3-)

C.3 Cable Testing for Existing Category 5 Cable

Installed Category 5 cabling must pass tests for Attenuation, Near-End Crosstalk (NEXT), and Far-End Crosstalk (FEXT). This cable testing specifications are contained in the ANSI/TIA/EIA-TSB-67 standard. Cables must pass test parameters for Return Loss and Equal-Level Far-End Crosstalk (ELFEXT). These tests are contained in the ANSI/TIA/EIA-TSB-95 Bulletin, “The Additional Transmission Performance Guidelines for 100 Ohm 4-Pair Category 5 Cabling.”

Note: When testing the cable installation, be sure to include all patch cables between switches and end devices.

C.3.1 Adjusting Existing Category 5 Cabling to Run 1000BaseT

If your existing Category 5 installation does not meet one of the test parameters for 1000BaseT, follow these measures to correct the problem:

Replace any Category 5 patch cables with high-performance Category 5e or Category 6 cables.

Reduce the number of connectors used in the link.

Reconnect some of the connectors in the link.

C.4 Fiber Standards

The current TIA (Telecommunications Industry Association) 568-A specification on optical fiber cabling consists of one recognized cable type for horizontal subsystems and two cable types for backbone subsystems.

Horizontal 62.5/125 micron multimode (two fibers per outlet).
Backbone 62.5/125 micron multimode or singlemode.

TIA 568-B allows the use of 50/125 micron multimode optical fiber in both the horizontal and backbone in addition to the types listed above. All optical fiber components and installation practices must meet applicable building and safety codes.

Appendix D: FCC Compliance and Warranty Statements

D.1 FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

D.2 Important Safety Instructions

Caution: Do not use an RJ-11 (telephone) cable to connect network equipment.

Read all of these instructions.

Save these instructions for later use.

Follow all warnings and instructions marked on the product.

Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

Do not use this product near water.

Do not place this product on an unstable cart or stand. The product may fall, causing serious damage to the product.

The air vent should never be blocked (such as by placing the product on a bed, sofa or rug). This product should never be placed near or over a radiator or heat register. This product should not be placed in a built-in installation unless proper ventilation is provided.

This product should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.

This product is equipped with a three-wire grounding type plug, which is a plug having a third (grounding) pin. This plug will only fit into a grounding type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your outlet. Do not defeat the purpose of the grounding type plug.

Do not allow anything to rest on the power cord. Do not place this product where people will walk on the cord.

If an extension cord is used with this product, make sure that the total ampere ratings on the products into the extension cord do not exceed the extension cord ampere rating. Also make sure that the total of all products plugged into the wall outlet does not exceed 15 amperes.

Never push objects of any kind into this product through air ventilation slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock. Never spill liquid of any kind on the product.

Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to service personnel.

D.3 IntraCore Warranty Statement

Products: IntraCore IC3624PWR

Duration: 3 years

Advanced Warranty Replacement: United States: Second Business Day

Other Countries: See your local distributor or reseller.

Asante Technologies warrants (to the original end-user purchaser) the covered IntraCore products against defects in materials and workmanship for the period specified above. If Asante receives notice of such defects during the warranty period, Asante will, at its option, either repair or replace products that prove to be defective. Replacement products may be either new or like-new.

Asante warrants that Asante software will not fail to execute its programming instructions, for the period specified previously, due to defects in material and workmanship when properly installed and used. If Asante receives notice of such defects during the warranty period, Asante will replace software media that does not execute its programming instructions due to such defects.

Asante does not warrant that the operation of Asante products will be uninterrupted or error free. If Asante is unable, within a reasonable time, to repair or replace any product to a condition as warranted, customer would be entitled to a refund of the pro-rated purchase price upon prompt return of the product.

Asante products may contain remanufactured parts equivalent to new in performance.

The warranty period begins on the date of delivery or on the date of installation if installed by Asante.

Warranty does not apply to defects resulting from (a) improper or inadequate maintenance or calibration, (b) software, interfacing, parts, or supplies not received from Asante, (c) unauthorized modification or misuse, (d) operation outside of the published environmental specifications for the product, or (e) improper site preparation or maintenance. This warranty expressly excludes problems arising from compatibility with other vendors' products, or future compatibility due to third-party software or driver updates.

TO THE EXTENT ALLOWED BY LOCAL LAW, THE PREVIOUS WARRANTIES ARE EXCLUSIVE AND NO OTHER WARRANTY OR CONDITION, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED AND ASANTÉ SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY, SATISFACTORY QUALITY, AND FITNESS FOR A PARTICULAR PURPOSE.

Asante will be liable for damage to tangible property per incident up to the greater of $10,000 or the actual amount paid for the product that is the subject of the claim, and for damages for bodily injury or death, to the extent that all such damages are determined by a court of competent jurisdiction to have been directly caused by a defective Asante product.

TO THE EXTENT ALLOWED BY LOCAL LAW, THE REMEDIES IN THIS WARRANTY STATEMENT ARE THE CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES. EXCEPT AS INDICATED PREVIOUSLY, IN NO EVENT WILL ASANTÉ OR ITS SUPPLIERS BE LIABLE FOR LOSS OF DATA OR FOR DIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, OR OTHERWISE.

Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages or imitations on how long an implied warranty lasts, so the previous limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may have other rights, which vary from jurisdiction to jurisdiction.

Appendix E. Online Warranty Registration

Please register the switch online at www.asante.com/support/warranty/index.html. By doing so, you'll be entitled to special offers, up-to-date information, and important product bulletins.